REMARKS

In the Office Action[1], the Examiner rejected claims 1-22 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2002/0071593 to Muratani ("*Muratani*") in view of U.S. Patent Application Publication No. 2002/0009208 to Alattar et al. ("*Alattar*").

By this Amendment, Applicants have amended claims 1, 10, and 19-22. Claims 1-22 are pending and under current examination.

I.   The Rejection of Claims 1-22 under 35 U.S.C. § 103(a)

Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 1-22 because a *prima facie* case of obviousness has not been established with respect to these claims.

The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. Such an analysis should be made explicit and cannot be premised upon mere conclusory statements. M.P.E.P. § 2142, 8th Ed., Rev. 6 (September 2007). "A conclusion of obviousness requires that the reference(s) relied upon be enabling in that it put the public in possession of the claimed invention." M.P.E.P. § 2145. "[T]he framework for objective analysis for determining obviousness under 35 U.S.C. § 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). . . . The factual inquiries . . . [include determining the scope and content of the prior art and] . . .

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[1] The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

[a]scertaining the differences between the claimed invention and the prior art."

M.P.E.P § 2141(II). "Office personnel must explain why the difference(s) between the

prior art and the claimed invention would have been obvious to one of ordinary skill in

the art." M.P.E.P. § 2141(III). A *prima facie* case of obviousness has not been

established because the rejections under 35 U.S.C. § 103(a) are not properly supported

by a clear articulation of why the claimed invention would have been obvious.

Independent claim 1 recites a digital watermark embedding apparatus

comprising, among other things, "a randomizing-function generation unit configured to

generate, based on the key information, a randomizing function by mapping from a first

space to a second space . . . the first space and the second space including a target

space concerning embedding amounts . . . wherein the randomizing-function generation

unit generates the randomizing function and computes the composite function to obtain

the embedded target content being restored to the target content even if the target

content is subjected to geometrical distortion after the composite function is embedded

in the target content." (emphasis added).

Claim 1 recites a special randomizing process that operates in a target space in

order to allow a digital watermark to be detected even after images are subjected to

geometrical distortion. For example, $(X(x, y), Y(x, y), Z(x, y))$ may represent the values

obtained after randomizing a pixel positioned at point (x, y) in a target space. Even if

point (x, y) is shifted to point (x', y') by geometrical distortion, values $(X(x', y'), Y(x', y'),$

$Z(x', y'))$ obtained after geometrical distortion are equal to values $(X(x, y), Y((x, y), Z(x,$

$y))$ before geometrical distortion. Moreover, if an operation reverse to randomizing is

executed on (X(x', y'), Y(x', y'), Z(x', y')), the pixel values before randomizing are restored.

Muratani discloses a digital watermark embedding apparatus that embeds watermarks into digital content by obtaining a topological invariant corresponding to watermark information and modifying the digital content into which the watermark information is embedded (*Muratani*, abstract). However, as conceded by the Examiner, *Muratani* fails to disclose mapping a first space to a second space, the first and second space including a target space concerning embedding amounts (Office Action at page 4). Moreover, *Muratani* does not disclose a randomizing technique that enables a digital watermark to be detected even after geometrical distortion, as discussed above. Therefore, *Muratani* does not teach or suggest at least "a randomizing-function generation unit configured to generate, based on the key information, a randomizing function by mapping from a first space to a second space . . . the first space and the second space including a target space concerning embedding amounts . . . wherein the randomizing-function generation unit generates the randomizing function and computes the composite function to obtain the embedded target content being restored to the target content even if the target content is subjected to geometrical distortion after the composite function is embedded in the target content." (emphasis added).

The Examiner alleges that *Alattar* discloses mapping a first space to a second space, the first and second space including a target space concerning embedding amounts by disclosing that "different message bits may be encoded more redundantly and a gain controller increasing or decreasing the strength of the watermark." (Office Action at page 4). Applicants respectfully disagree. *Alattar* discloses "mapping

selected bits to more locations in the host signal than other message bits" and using the gain controller to alter "the corresponding sample value in the host image." (page 10, ¶¶ 0122, 0125). However, *Alattar* is silent regarding mapping within a target space. Furthermore, *Alattar* does not disclose a randomizing technique that enables a digital watermark to be detected even after geometrical distortion, as discussed above. Therefore, *Alattar* does not teach or suggest at least "a randomizing-function generation unit configured to generate, based on the key information, a randomizing function by mapping from a first space to a second space . . . the first space and the second space including a target space concerning embedding amounts . . . wherein the randomizing-function generation unit generates the randomizing function and computes the composite function to obtain the embedded target content being restored to the target content even if the target content is subjected to geometrical distortion after the composite function is embedded in the target content." (emphasis added).

In view of the above, the Office Action has neither properly determined the scope and content of the prior art nor properly ascertained the differences between the prior art and the claimed invention. Accordingly, the Office Action does not clearly articulate a reason why independent claim 1 would have been obvious to one of ordinary skill in view of the art. Therefore, a *prima facie* case of obviousness has not been established and the Examiner should withdraw the rejection of independent claim 1 under 35 U.S.C. § 103(a).

Independent claims 10 and 19-22, although of different scope from claim 1 and from each other, recite elements similar to those discussed above with respect to claim 1. Accordingly, for at least the reasons discussed above with respect to claim 1, no

prima facie case of obviousness has been established for claims 10 and 19-22. Therefore, the Examiner should withdraw the rejection of claims 10 and 19-22 under 35 U.S.C. § 103(a).

Claims 2-9 depend from claim 1 and claims 11-18 depend from claim 10, and therefore include all the elements recited therein. Accordingly, no *prima facie* case has been established with respect to claims 2-9 and 11-18 at least due to their dependence. Therefore, Applicant respectfully requests the Examiner to withdraw the rejection of claims 2-9 and 11-18 under 35 U.S.C. § 103(a).

II.   Conclusion

In view of the foregoing, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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